Autodesk[®] Building Design Suite Ultimate 2016

What's new in Autodesk[®] Robot[™] Structural Analysis Professional 2016









Simulation and analysis Autodesk Robot Structural Analysis Professional 2016

Enhanced wind load simulation

- Create and save wind profiles
- Velocity factor increased to 5.00
- The height of the wind profile can be adjusted
- Graphic representation of the virtual wind tunnel

Better predict wind load effects early in design

K Wind simulation	
General Wind Profile	
Drag the graph to set the structure height.	wind profile along the
Height (m)	
127.00	2.90
110.40	2.90
0.00	2.80
98.50	2.60
78.80	12.00
63.90	2.40
47.70	2.20
32.00	2.00
19.70	
12.30	
0.00 1.00 2.00) 3.00 4.00 Velocity
Name:	
My Profile	Save
My Profile	
Reset	
Start	Close
-	





Simulation and analysis Autodesk Robot Structural Analysis Professional 2016

- Name change for geometrically nonlinear analyses
 - Non-linear becomes P-Delta
 - P-Delta becomes Large displacem



	ts	-	Case: Cases Auxiliary case Geometric nonlinearity Image displacements Nonlinear analysis parameters	
Ar	alysis	Пуре	OK Cancel Help	
naly	sis Ty	pes Structure Model Load	to Mass Conversion Combination Sign Result	
No.		Name	Analysis Type	
+	1	Static	Static - Linear	
	2	P-Delta	Static - P-Delta	
	3	LargeDisp	Static - Large Disp.	
	4	Buckling	Linear Buckling	
	5	Buckl2	Static - P-Delta	
	6	Buckl3	Static - Large Disp.	



Simulation and analysis Autodesk Robot Structural Analysis Professional 2016

Improved structural loads

- Wind loads for structures with parapets
- Update of Russian seismic code SNIP II-7-81

Greater generation of structural loads

	ers Wind Sno	ow Perme	eability		
Cdir:	1.00	Cseas:	1.00		
CsCd:	1.00	K:	0.20		
		kl:	1.00		
-Wind velocity -					
,	Vb,0	24	(m/s)	© Qb	0.36 (kPa)
Use only Cpe	e10				
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II - Cultivatio	on areas with fend	es, trees a	nd houses		
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K Russian code SNiP	II-7-81 - Para	meters	_				
Case:	Seismic SNiP II-7-81						
Auxiliary case							
Soil category (Table 1)		Parameters					
II 🔘 I 🔘	© Ⅲ	K1 (Table 3)	1				
Region seismic type (Table 1)		K_Psi (Table 6)	1.5				
		mkp (Table 7)	1				
Seismic type of structur							
base	- 7	Direction	definition				
A	0.1	Filters					
		OK Cancel	Help				







Modeling and usability Autodesk Robot Structural Analysis Professional 2016

Selection preview

- Identify elements while you mark them for selection
- Selection window

Efficient tool for selection structures



Modeling and usability Autodesk Robot Structural Analysis Professional 2016

Enhanced model verification

- Improved Calculation Messages dialog
- Better visualization of the important area of the model

Faster identify and fix issues in the model for analysis



Computational model is out-of-date. The limited verification has been perform Torsional constant Ix equals zero in the section definition. The value Ix=1e-5 Moment of inertia (Iz) equals zero in the section definition. The value Iy = 1.0 Moment of inertia (Iz) equals zero in the section definition. The value Iz = 1.0 Isolated Node Incomplete geometrical properties (zero values of Vy, Vpy, Vz, Vpz parameter Number of errors:0 Number of warnings:5 < <u>Verify</u> Clo Select a line to highlight associated objects in the structure model.	K Structure verification	
Isolated Node Incomplete geometrical properties (zero values of Vy, Vpy, Vz, Vpz parameter Number of errors:0 Number of warnings:5 Verify Clo Select a line to highlight associated objects in the structure model.	Computational model is out-of-date. The limited verification has been perform Torsional constant Ix equals zero in the section definition. The value Ix=1e-5 Moment of inertia (Iy) equals zero in the section definition. The value Iy = 1.0 Moment of inertia (Iz) equals zero in the section definition. The value Iz = 1.0	Display Errors Warnings Notes
Verify Clo Select a line to highlight associated objects in the structure model.	Isolated Node Incomplete geometrical properties (zero values of Vy, Vpy, Vz, Vpz parameter Number of errors:0 Number of warnings:5	
	Select a line to highlight associated objects in the structure	Verify Clo
	Select a line to highlight associated objects in the structure	Verify Cl model.



Modeling and usability Autodesk Robot Structural Analysis Professional 2016

Nodal Mass

Values of wei

Z: Apply to

Add

- User interface changes
 - New arrangement for the New Section and Materials dialogs
 - Solid modeler settings
 - Updated Nodal Mass dialog

Set of essional 20 Set of	16 eel Gamma angle: O (Deg) EEL	Materials Steel Concrete All Material: A36 Assign to sections: Section HP 310x125 UC 305x305x97 UB 305x165x40 W 16x40 W 460x61 HEB 200 HEB 260 C 120 ✓ Apply	Object/wind Material STEEL 350A S275 S275 STEEL 350A STAL STAL STAL STAL STAL T	ow/capture:
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Autodesk Robot Structural Analysis Professional 2016

- Enhanced steel design
 - New tube end plate connection
 - Eurocode 3 updates

More accurate design of steel structures





Name	HS End Pl	late 👻		
	Right side			
58x8 ▼	Section: Material:	STEEL	TRON 168x8	
	Heigth:	h ₁ =	168 mm	
	Width:	b ₁ =	168 mm	
Heigth: Length: Thickness: Dimension: Dimension:		$h_s =$ $l_s =$ $t_s =$ $c_{1s} =$ $c_{2s} =$	38 mm 57 mm 8 mm 4 mm 4 mm	
Material.		STEEL 4	3-243	
all components		STEEL 4	3-245 👻	





Autodesk Robot Structural Analysis Professional 2016

New codes for timber design

- New American Wood Design code NDS 2012
- Eurocode 5 updates

More accurate design of timber structures

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Autodesk Robot Structural Analysis Professional 2016

- Enhanced concrete design
 - RC Beams—Verification based on real bars positions
 - RC Beams—Parallel calculations
 - Modification of the algorithm for the generation of U-shape anchorages









Autodesk Robot Structural Analysis Professional 2016

New codes for concrete design

- New Indian seismic code IS 13920:1993
- Updates to the French Annex NF EN 1992-1-1/NA:2007
- New geotechnical codes

Wide range of international concrete design codes



Autodesk Robot Structural Analysis Professional 2016

Composite beam design

- Quickly check and design the behavior of composite beams
- Design the composite floor system on a floor-by-floor basis
- Design according to the ANSI/AISC 360-10 code

Design composite structures



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	Concrete Thickness:	2.500 in	Rib Width Bottom:	0.000 in		
Toung's modulus: 28999.997 kip/in	Concrete Density:	17279.7 N/m3	Rib Width Top:	6.000 in		
Strength: 65.000 kip/in2	Stiffness:	1998 260 kip/in2				
	Compressive Strength:	3.000 kip/in2				
	Flange width:	37.500 in				
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